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10/581,241

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Thomas Friedhelm Buschkuehl

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EXAMINER

RIDDLE, KYLE M

ART UNIT

PAPER NUMBER

3748

MAIL DATE

DELIVERY MODE

09/23/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/581,241

Applicant(s)BUSCHKUEHL, THOMAS
FRIEDHELM**Examiner**

KYLE M. RIDDLE

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3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1 and 4-15 is/are rejected.
7) ☒ Claim(s) 2,3 and 16-31 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 30 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/30/06, 11/27/06.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 4-11, 14, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Vo et al. (DE 3911495 C1).

Vo et al. disclose a hydraulic valve actuator comprising a housing or hydraulic cylinder 4, a reciprocating piston 5 within cylinder 4 driving gas shuttle valve 1 (see translation, bottom of second page), first, second, and third supply paths 11, 12, 14 for supplying pressurized fluid to the top, side, and bottom of piston 5, drain paths 13, 15, 16, 17, 18, 28 for draining fluid from the top, side, and bottom of piston 5, independent control valves 27, 29, 26a, 26b for the various paths (translation, top of page 3, Figure 1), an aperture in the cylinder 4 for passing a connector or piston rod 6b (translation, bottom of second page, Figures 1-3), the piston 5 wall providing a sealing function with the inside of the cylinder 4 containing the aperture (bottom half of page 3, Figures 1-3), the longitudinal axis of the piston 5 being perpendicular to the longitudinal axis of the connector or piston rod 6b (Figures 1-3), the top and bottom surface area of the piston 5 being substantially the same (Figures 1-3), the device having a high pressure reservoir or

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accumulator 24 (top of page 3, Figure 1), the device providing for valve deceleration and seating (bottom of page 3), and a biasing means or springs 7, 8 (bottom of page 2, Figure 1).

3. Claims 1, 4-11, 14, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Lou (U.S. Patent 6,505,584).

Lou discloses a variable valve control system comprising a discrete lift, variable timing device with a housing 2, pistons 12, 14, 16, 18 having top and bottom surfaces and operating an engine valve 86 (column 3, lines 19-30; Figures 1 and 3), supply paths or inlets 56, 58, 60, 62 with drains or exhausts 64, 66, 68, 70 (column 4, lines 8-22), independently operated control valves 72, 74, 76, 78, 82, 122, 124, 126, 128, 148, 156, 168 (Figures), an aperture or valve guide 94 in housing 2 for passing a connector or stem 90 to the pistons (column 4, lines 42-53; Figures), the pistons providing a sealing means with the housing (column 8, lines 48-52), the longitudinal axis of the pistons being perpendicular to the longitudinal axis of the valve stem (Figures), each of the pistons having top and bottom surfaces substantially the same in surface area (Figures), a pump 80 providing high pressure fluid to various supply paths (column 4, lines 15-25), the engine valve 86 provided with valve seating and deceleration (column 5, lines 59-64), and a biasing means or springs 96, 160, 166 (Figures).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being obvious over Vo et al. or Lou.

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Vo et al. and Lou provide the valve actuators cited above, however, fail to specifically disclose pistons with hollow portions. The use of many various pistons in valve actuation devices with multiple shapes and configurations are well known in the art, and to use a hollow portion would be obvious to one of ordinary skill in the art depending on desired surface area influence, supply and drainage vantage points, etc.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vo et al. or Lou in view of Suzuki (U.S. Patent 6,237,553).

Vo et al. and Lou provide the valve actuators cited above, however, fail to specifically disclose the poppet valves allowing spinning around the axis.

Suzuki teaches a valve driving arrangement comprising a valve bridge for multiple engine valves allowing for valve rotation (column 2, lines 1-37). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Suzuki in the valve actuators of Vo et al. and Lou, since the use thereof would have provided a means to actuate multiple valves while also providing for valve rotation to help prevent wear on the valve seat.

Allowable Subject Matter

7. Claims 2, 3, 16-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The IDS (PTO-1449) filed on 30 October 2006 and 27 November 2006 has been considered. An initialized copy is attached hereto.

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9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of 3 patents.

- Schwoerer et al. (U.S. Patent 6,302,370) disclose a valve seating control device with a control piston as part of the seal.

- Vanderpoel et al. (U.S. Patent 6,474,277) disclose a method for valve seating velocity control with piston sealing functions.

- Sun (U.S. Patent 6,959,673) discloses a valve actuator assembly with multiple supply paths, drain paths, and independently controlled valves.

Communication

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KYLE M. RIDDLE whose telephone number is (571)272-4864. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas E. Denion/
Supervisory Patent Examiner, Art Unit 3748

/Kyle M. Riddle/
Examiner
Art Unit 3748

kmr